The State of Gas in Collisional Galaxies containing AGN

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We present ISO, VLA and BIMA observations of the CO and HI content in two collisional Seyfert galaxies-NGC 985 and NGC 1144 (Arp 118). Both systems exhibit signs that their molecular and atomic gas are in a highly transient state. Both appear to have a huge overabundance of molecular gas relative to atomic, only moderate far-IR luminosities, and both show highly disturbed inner disk dynamics. NGC 985, a powerful X-ray source, has many similarities to nearby quasar host galaxies. Its huge molecular reservior consists of two dynamical components, one consisting of descrete SGMCs which may be raining in on the double nucleus, and a second asymmetric structure offset from the center. The descrete CO clouds may be associated with strong intrinsic UV absorption lines seen against the Seyfert nucleus. This along with X-ray evidence of a warm absorber, suggests that the dense CO clouds may be interacting with a hot AGN wind. New HI observations of Arp 118 suggest the possible ongoing transformation of HI to CO in the disk of NGC 1144-perhaps via a collisionally-induced disk-wide shock wave. Future observation of similar AGN in collisional systems will concentrate on the COLA all-sky IRAS-selected galaxy sample. This contains an unbiassed set of galaxies with or without compact radio cores, many of which are in various stages of galaxy-galaxy interaction.

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